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EXAMINER	
HAN, QI	

ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/621,007	DAVIS, SCOTT	
	Examiner	Art Unit	
	Qi Han	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Amendment

2. This communication is responsive to the applicant's amendment dated 03/26/2007. The applicant(s) amended claims 8-9 (see the amendment: page 4).

The examiner withdrew the rejection of claims 8-9 under 35 USC 112 2nd, because the applicant amended the claims.

Response to Arguments

3. Applicant's arguments filed on 03/26/2007 with respect to the claim rejection under 35 USC 102/103, have been fully considered but they are not persuasive.

In response to applicant's arguments with respect to claim 1 that CHUA does not disclose "displaying a subset of virtual keys" as claimed (see REMARK of the amendment: page 3, paragraphs 5-7), the examiner respectfully disagrees with the applicant's arguments and has a different view of prior art teachings and claim interpretations. It is noted that, as rejected, CHUA discloses using 'touch screen' and deciding 'a first set of candidate keys (subset virtual keys)' (p17), and 'a list display area 26 (Fig. 1)' that when 'the user touches one of the words in the list display area' 'the selected word then appears in the message line 24' (p21; also see p23-p25, p37), which clearly indicates that each touched position representing each candidate

symbol/letter/word in the list display area **is a virtual key**, based on plain meaning (touching the specific screen area causes reaction as if key-in the information). It is also noted that CHUA's disclosure of 'the most likely symbol of the candidates symbol is displayed in the relevant position in the message line 24'(p31) and the displayed two letters 'Th' in the referenced number 24 of Fig. 1 can be read on the claimed and argued limitation, based on broadest reasonable interpretation of the claim.

Regarding applicant's arguments for the rejection of the other claims, the response is based on the same reason described above, because the arguments are based on the same issue as claim 1.

For above reason, the examiner believes the prior art teaches all limitations as claimed and the rejection is properly addressed. Therefore, the rejection is sustained.

Specification and Drawing

4. The disclosure is objected to because of the following:

(i). on page 13, paragraph 47 and Fig. 7, even though applicant amended the specification (see the amendment: page 2, last paragraph), the textual reference "a recognition sequence" and the corresponding referenced number "700" are not shown in the corresponding drawing of Fig. 7. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. Claims 1-3, 10-13 and 17-21 are rejected under 35 U.S.C. 102(e) as being anticipated by CHUA (US 2004/0183833 A1).

As per **claim 1**, CHUA discloses 'keyboard error reduction method and apparatus' (title) for 'small portable devices, such as mobile telephones, personal digital assistants (PDA)' adopting 'various method for entering symbols or data into them', such as 'voice recognition, hand writing recognition' (paragraph (hereinafter referenced as p) 3), comprising:

"an input component receives a user input to be recognized" (p2, 'such screens are not just used... to display data to user, but also as means (input component) for the user to input (receive) data');

"a recognition component that analyzes the user input and identifies a subset of virtual key of a plurality of available virtual keys to concurrently convey to a user during the user input", (p3, 'voice recognition', 'hand writing recognition' (recognition component); p7, 'receiving input data identifying the selected position, indicated during the selection operation, and deciding on at least one candidate of the selected position relative to the representative position of a second plurality of the selectable portions (corresponding to a plurality of available virtual keys'; p17, 'mobile telephone with virtual keyboard and a touch screen', 'virtual keys', 'these candidate keys are then used to provide a set of potential words that would result from the input of any one of those keys'; p21-p23 and Fig. 1, 'the user touches one of the words (corresponding virtual keys) in the list display area 26 and the selected word then appears in the message line 24'; also see p25, 31 and p34-p37);

"a rendering component that displays the subset of virtual keys to the user concurrently with receiving the user input", (p21-p23, 'the user touches one of the words (subset of virtual keys) in the list display area 26 and the selected word (receiving the user input) then appears (display) in the message line 24').

As per **claim 2** (depending on claim 1), CHUA further discloses "the input entry being voice" (p3, 'various method for entering symbols or data into them...voice recognition').

As per **claim 3** (depending on claim 1), CHUA further discloses "the input entry being handwriting" (p3, 'various method for entering symbols or data into them...hand writing recognition').

As per **claim 10** (depending on claim 1), CHUA further discloses "displaying N virtual keys, N being an integer, and N being a function of confidence associated with the analysis" (p81-105, 'the top six (N=6) scoring Wfreq (corresponding to function of confidence associated with the analysis) words for any possibility are chosen', 'the list... containing the top six candidate strings in score order', 'this list of words is then displayed').

As per **claim 11** (depending on claim 10), CHUA further discloses "the virtual keys being dynamically determined and/or inferred" (Fig. 1 and p81-105, wherein the content of the list display area 26 is changed based on input data, so as being dynamically determined and/or inferred as claimed).

As per **claim 12**, it recites a portable communication device. The rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1, wherein the mobile telephone disclosed by CHUA is read on the claimed portable communication device.

As per **claim 13**, it recites a portable computing device. The rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1, wherein the PDA disclosed by CHUA is read on the claimed portable computing device.

As per **claim 17**, it recites a portable computing device recognition method. The rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1.

As per **claim 18** (depending on claim 17), the rejection is based on the same reason described for claim 3, because the claim recites the same or similar limitation(s) as claim 3.

As per **claim 19** (depending on claim 17), the rejection is based on the same reason described for claims 10-11, because the claim recites the same or similar limitation(s) as claims 10-11.

As per **claim 20**, it recites a computer readable medium having stored computer executable instructions. The rejection is based on the same reason described for claim 17, because the claim recites the same or similar limitation(s) as claim 17.

As per **claim 21**, it recites portable computing device recognition system. The rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1.

Claim Rejections - 35 USC § 103

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over CHUA in view of LEWIS et al. (US 6,826,306) hereinafter referenced as LEWIS.

As per **claim 4** (depending on claim 1), CHUA does not expressly disclose "a data store having stored thereon a plurality of user profiles that the recognition component employs in connection with the analysis". However, the feature is well known in the art as evidenced by LEWIS who discloses 'system and method for automatic quality assurance of user enrollment in a recognition system' (title), comprising 'conventional recognition system (e.g. handwriting and speech)' including 'memory 14 for storing text data and enrollment data (which is collected and stored for one or more users)' that 'is utilized during user enrollment to train user-dependent prototypes 22 (statistical model) ...for a given data recognition system' (col. 3, lines 14-53), and allowing 'a user to create a "user profile" during the initial phase of user enrollment...' and 'user profile ...determined to be specific to the user and automatically applied by the recognition engine ...', (col. 5, lines 19-32), which suggests that one or more users can be enrolled in the recognition system and each user can have his own user profile, as claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify CHUA by providing a mechanism for storing user profiles for a recognition system, as taught by LEWIS, for the purpose (motivation) of providing automatic quality assurance of a user enrollment in a recognition system (LEWIS: col. 2, lines 27-28).

7. Claims 5-6, 8-9 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over CHUA in view of LYON (US 6,480,621).

As per **claim 5** (depending on claim 1), CHUA does not expressly disclose "the recognition component utilizing an artificial intelligence component providing inference of possible real-time input entry". However, the feature is well known in the art as evidenced by

LYON who discloses 'statistical classifier with reduced weight memory requirements' (title), and teaches that 'adaptive statistical classifiers are used for applications such as speech recognition, handwriting recognition and optical character recognition', 'in a handwriting recognition system, the input unit 12 can be any conventional device for capturing handwriting text such as optical character recognition (OCR) device or a digital tablet', 'in addition, for speech recognition, the input unit 12 may be a microphone' (col. 1, lines 30-33), including 'run-time (real time) operation of the classifier' using 'neural networks, Bayesian a posteriori probabilities, and pattern classification' and 'hybrid HMM/connectionist approach' (corresponding to artificial intelligence) (col. 2, lines 44-62), and providing 'real time recognition of handwriting' having 'training a mode to tune the operation of the classifier for a particular user' (col. 15, lines 10-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify CHUA by providing real time recognition for handwriting and/or speech with artificial intelligence approach, as taught by LYON, for the purpose (motivation) of reducing error for classifier outputs and/or improving recognition results (LYON: col. 3, lines 49-67).

As per **claim 6** (depending on claim 5), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 6.

As per **claim 8** (depending on claim 5), CHUA in view of LYON further discloses "the recognition component utilizing a starting point of the real-time input entry for determination and/or inference", (CHUA: Fig. 2 and p22, 'touch screen circuit 30' with 'horizontal and vertical sensors' that 'are arranged to detect the point of contact, the selected position, of a touch on the

tough screen', which necessarily and/or inherently includes starting point and/or end point for the input, as claimed).

As per **claim 9** (depending on claim 5), the rejection is based on the same reason described for claim 8, because the rejection for claim 8 covers the same or similar limitation(s) as claim 9.

As per **claim 14** (depending on claim 1), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 14.

As per **claim 15** (depending on claim 1), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 15.

As per **claim 16** (depending on claim 15), the rejection is based on the same reason described for claim 5, because the rejection for claim 5 covers the same or similar limitation(s) as claim 16.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over CHUA in view of LYON as applied to claim 5, and further in view of LEWIS.

As per **claim 7** (depending on claim 5), even though CHUA in view of LYON discloses the artificial intelligence component (as stated for claim 5, see above), CHUA in view of LYON does not expressly disclose "contemplating and/or accounting for quality-deterioration of the real-time input". However, the feature is well known in the art as evidenced by LEWIS who discloses 'system and method for automatic quality assurance of user enrollment in a

recognition system' (title), comprising 'checks the quality of a new enrollment (real time input)' (col. 2, lines 31-32), using 'conventional recognition system (e.g. handwriting and speech)', 'for real time digitization and recognition', including processing 'handwriting data' on 'the input device at successive points in time (which is generated with an "online"/ "dynamic" pen-based computer)' (col. 3, lines 13-49). LYON also discloses the enrollment data is utilized...to train user-dependent prototypes 22 (statistical model) (col. 3, lines 50-59) that corresponds to the artificial intelligence component, which further supports the claim rejection. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify CHUA by providing a mechanism for checking quality of enrollment data by using the artificial intelligence component (such as statistical model) for a recognition system, as taught by LEWIS, for the purpose (motivation) of providing automatic quality assurance of a user enrollment in a recognition system (LEWIS: col. 2, lines 27-28).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory

action. In no event, however, will the statutory period for reply expire later than SIX

MONTHS from the mailing date of this final action.

10. Please address mail to be delivered by the United States Postal Service (USPS) as follows:

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qi Han whose telephone numbers is (571) 272-7604. The examiner can normally be reached on Monday through Thursday from 9:00 a.m. to 7:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil, can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see http://pair-direct.uspto.gov.

QH/qh
June 18, 2007

RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER